

**ADDENDUM  
QUALITY ASSURANCE PROJECT PLAN  
BAYONNE BARREL AND DRUM  
NOVEMBER 1996**

*Prepared for:*  
**PRP Group / de maximis, inc.**

**July 15, 2002**

 **Quest Environmental & Engineering Services, Inc.**

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**ADDENDUM  
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*Prepared by:*  
**Quest Environmental & Engineering Services, Inc.  
1741 Route 31  
Clinton, NJ 08809**

**July 15, 2002**

This document presents additions and revisions to the November 1996 *Bayonne Barrel and Drum Site Quality Assurance Project Plan* and the December 30, 1996 *Response to USEPA Comments* prepared by Blasland, Bouck & Lee, Inc. for implementation of sampling and analytical activities at Area of Concern (AOC) VII Buildings. The additions and revisions to each section of the Quality Assurance Project Plan (QAPP) are provided below. The investigation in AOC VII will incorporate the Quality Assurance (QA) and Quality Control (QC) procedures specified in the November 1996 QAPP, the December 30, 1996 *Response to USEPA Comments*, and this addendum.

### **Section 1. SITE HISTORY / BACKGROUND INFORMATION**

Sampling conducted during various investigations by Dan Raviv Associates (1986), Louis Berger and Associates (1986), USEPA (1994-1995) and Blasland, Bouck & Lee, Inc. (1997) provides a baseline of expected constituents of concern present in the fill and as a result of operations of the Bayonne Barrel and Drum Company. The following is a list of constituents of concern, based on the prior assessments, which were selected for sample analysis in the northern building complex:

- Petroleum Hydrocarbons
- Volatile Organic Compounds
- Polycyclic Aromatic Hydrocarbons
- Metals
- Pesticides
- PCBs
- Dioxins

Earlier assessments attributed many of the remaining contaminants of concern to the historic fill used to elevate the grade of the site prior to Bayonne Barrel and Drum operations. Fill, attributed to and designated as the 15 E Sanitary Landfill, is present on the southern two-thirds of the site and surrounding properties, and fill potentially from PSE&G, consisting of coal-fired ash and cinders, is present on the northern portion of the site.

The area of land where the buildings are located was filled prior to 1931. The site was reportedly used as a leather tannery prior to the drum reconditioning use. There are currently nine buildings on-site; however, there have been prior buildings. Reported explosions and fires may have resulted in removal/alteration or reconstruction of prior buildings. The following is a brief description of each existing building:

<u>Building Number</u>	<u>Floor Area (sq. ft.)</u>	<u>Estimated Construction Date</u>	<u>Description/Use</u>
1	29,000	Late 1950's	Concrete block building used for reconditioning of closed head drums, and for shot blasting open and closed head drums
2	2,250		Drum staging building for preparation for the furnace
	760		Furnace for the cleaning of drums
3	14,000	Prior to 1940	Concrete and brick building used to receive open head drums immediately after cleaning in the furnace
4	20,000	Late 1950's	Transite and steel building used for the reconditioning of open head drums
5	4,000	1960's	Paint storage building
6	5,400	Prior to 1940	Office building
7	9,300	Prior to 1940	Machine shop and maintenance garage
8	2,400	Late 1960's	Boiler House
9	1,750		Service Building

Prior sampling (Dan Raviv & Associates, 1986) was limited in scope in the building complex due to the potential interference with ongoing operations and inaccessibility. Sampling was conducted in the Furnace Area and the Petroleum Storage Area, which are within the building complex area. Dan Raviv & Associates (DR&A) had included this Area of Concern (AOC) as "VII Buildings". Results of building surface and sediment sampling indicated "significant concentrations". The operations in building numbers 1 and 4 involved closed and open head drum reconditioning with the potential to have discharges through cracks, seams and below grade sumps/pits. Many of the larger buildings were installed in the late 1950s through 1960 with smaller buildings added thereafter. Site operations began in 1934 in the immediate area of the buildings. The potential exists for contamination from these prior operations to be present below the buildings.

### Section 1.2 Current Status

In accordance with the May 2002 Conceptual Sampling Plan for AOC VII Buildings, the soil characterization sampling and analysis efforts will focus on the northern building complex.

**Section 1.3 Project Objectives**

(No Additions/Revisions)

**Section 1.4 Sample Network Design and Rationale**

(No Additions/Revisions)

**Section 1.5 Parameters to be Tested and Frequency**

See revisions to Tables 1-1 and 1-2.

**Section 1.6 Data Quality Objectives**

(No Additions/Revisions)

**Section 1.7 Schedule**

The project schedule is presented in the June 2002 Addendum to the Sampling and Analysis Plan (SAP).

**Section 2. PROJECT ORGANIZATION AND RESPONSIBILITY**

Quest Environmental & Engineering Services, Inc. (Quest) maintains overall technical responsibility for conducting the sampling activities specified in the SAP. As such, Quest will perform field sampling, tabulate and assess the data. Trillium Inc. will provide QA/QC oversight. The management of technical and administrative aspects of the project will be accomplished by *de maximis*, Quest, and USEPA Region 2.

To date, the following key personnel are assigned to the project:

Affiliation	Title	Name	Telephone Number
<i>de maximis, inc.</i>	Project Coordinator	William J. Lee	(908) 735-9315
Quest Environmental & Engineering Services, Inc.	Project Manager	Darin Vogel	(908) 735-8600
	Field Manager	Kenneth Swider	(908) 735-8600
Trillium, Inc.	Quality Assurance Officer	Polly Newbold	(908) 479-1975
STL Edison	Laboratory Project Manager	Deanna Doster	(888) 722-4897
USEPA Region 2	Project Manager/OSC	Joseph Consentino	(732) 906-6983

**Section 2.1 de maximis, inc**  
(No Additions/Revisions)

**Section 2.2 Blasland, Bouck & Lee, Inc.**

All references to Blasland, Bouck & Lee, Inc. (BBL) are changed to Quest Environmental & Engineering Services, Inc. (Quest).

**Section 2.3 USEPA**  
(No Additions/Revisions)

**Section 2.4 Analytical Laboratory**  
(No Additions/Revisions)

**Section 3. QUALITY ASSURANCE OBJECTIVES**

**Section 3.1 Level of Quality Control Effort**

Soil MS/MSD samples require double volume.

**Section 3.2 Qualitative QA Objectives**  
(No Additions/Revisions)

**Section 3.3 Quantitative Quality Assurance Objectives**  
(No Additions/Revisions)

**Section 4. SITE SELECTION AND SAMPLING PROCEDURES**

Site selection and sampling procedures for AOC VII Buildings are described in the June 2002 SAP Addendum.

**Section 5. SAMPLE CUSTODY**

**Section 5.1 Field Sample Custody (and subsections)**  
(No Additions/Revisions)

## **Section 5.2 Laboratory Custody**

### **Section 5.2.1 Laboratory Sample Receipt**

Samples will be received at the laboratory by a designated Sample Custodian. The Sample Custodian will remove the samples from the cooler and compare the sample labels with the information provided on the chain-of-custody form. If applicable, sample preservation, including temperature, is checked upon sample receipt (volatile water sample preservation is checked at the time of screening). When “compromised” samples are received, it is documented in the project folder and brought to the immediate attention of the Project Manager. Samples will be considered “compromised” if the following conditions are observed upon sample receipt:

- Cooler and/or samples are received outside of temperature specification.
- Samples are received broken or leaking.
- Samples are received beyond or close to the holding time.
- Samples are received without appropriate preservative.
- Samples are received in inappropriate containers.
- COC does not match samples received.
- COC is not properly completed or not received.
- Breakage of any Custody Seal.
- Apparent tampering with cooler and/or samples.
- Headspace in volatiles samples.
- Seepage of extraneous water or materials into samples
- Inadequate sample volume.
- Illegible, impermanent, or non-unique sample labeling.

Quest will be contacted for instructions on whether to proceed with analysis. If analysis is performed, the project report will clearly indicate any of the above conditions and resolutions.

Samples will be logged into a Laboratory Information Management System (LIMS) to uniquely identify and track samples and analytical data throughout the facility. The laboratory additionally will maintain a hand-written master log as a parallel paper system backup. The following information will be entered into the computer:

- Job number (unique to the job or set of samples)
- Date received
- Sample Data
- Sample matrix
- Client's name
- Client's Site Name or Number
- Billing information – purchase order numbers
- Sample number (unique to this sample)
- Refrigerator location
- Data analytical results due
- Turnaround Time
- Number of containers
- Additional comments
- Client's address
- Analyses requested
- Notation of special handling instructions
- Deliverable Requirements

This information will be stored as part of the STL Job data which is identified by a unique Job Number. Two labels with this number will be placed on each container of the sample (one on the side and one on the top). If there is more than one container per sample, a letter suffix will be assigned to track each container. The laboratory number, letter suffix, and a description of the container will be recorded in the STL Job Number comment section. Once labeled, the samples will be placed in the appropriate storage area. Once the STL Job Number has been generated, method specific analytical worksheets are generated for distribution to the appropriate supervisors and analysts. A secondary review of the STL Job Number is carried out by the Project Manager to ensure compliance with project requirements.

### **Section 5.2.2 Laboratory Sample Storage**

Samples will be stored in locked refrigerators maintained at 4° C. When the laboratory is ready to analyze a sample, an analyst will request the appropriate sample aliquot from the Sample Custodian by presenting their sample request worksheet. The analyst may be required to sign an internal chain-of-custody form when removing the sample aliquot from the sample management area based on the project requirement.

When the analysis is complete, the analyst will return the sample to the custodian and relinquish custody. Samples will be stored in the refrigerators until their established disposal date. When the storage period expires, the samples will be removed from the refrigerator for disposal. All unused solid samples removed from the refrigerators will be packed for disposal and tested to insure compliance with applicable state and federal guidelines.



## **Section 6. CALIBRATION PROCEDURES AND FREQUENCY**

(No Additions/Revisions)

## **Section 7. ANALYTICAL PROCEDURES**

Samples collected will be analyzed for total petroleum hydrocarbons, volatile organic compounds, semi-volatiles, pesticides, PCBs, metals, and PCDDs (dioxins) by STL Edison. Analysis of PCDDs will be accomplished via laboratory screening using EPA Method 8270 with a 1-point calibration. The laboratory screening method has a detection limit of 33 ppb.

Revisions and additions to specific analytical methods are listed in the revised Table 1-1:

## **Section 8. INTERNAL QUALITY CONTROL CHECKS**

### **Section 8.1 Field Operations**

Additions and revisions to the field QC analyses are summarized in the revised Table 1-2.

Field blanks will be collected at a rate of one per day from re-usable sampling equipment (i.e. mixing bowl, spatula etc). Field blanks will be analyzed for all analytical parameters. Demonstrated analyte-free water obtained from the laboratory will be used for preparation of field blanks. Documentation as such will be provided by the laboratory.

Trip blanks consisting of methanol will be required for non-aqueous samples in accordance with the NJDEP methodology for the Field Extraction/Preservation of Soil Samples with Methanol for Volatile Organic Compounds, February 1997.

### **Section 8.2 Laboratory Operations (and subsections)**

(No Additions/Revisions)

## **Section 9. DATA REPORTING AND VALIDATION**

### **Section 9.1 Field Data Reporting**

(No Additions/Revisions)

### **Section 9.2 Laboratory Data Reporting**

A primary review of the generated data will be conducted by the analyst. One of the most important aspects of primary review is to make sure that the test instructions are clear; and that all project-specific requirements have been understood and followed. Once the analysis is complete, the primary reviewer will ensure that: sample preparation information is complete, accurate, and documented; calculations have been performed correctly; quantitation has been performed accurately; qualitative identifications are accurate; client-specific requirements have been followed; method and process SOPs have been followed; method QC criteria have been met; QC samples are within established limits; dilution factors are correctly recorded and applied; non-conformances and/or anomalous data have been properly documented and appropriately communicated; COC procedures have been followed. If the instrument calibration and recoveries of all quality control samples are within specified tolerances, then the data will be presented for secondary review. If instrument calibration or the recoveries of any quality control samples exceed specified tolerances, then affected sample results will be evaluated and may be submitted for re-analysis. Any manual integration that occurs will be dated and signed and, if appropriate, noted in the case narrative.

Secondary review (a complete technical review) will be conducted by laboratory Section Supervisors or data review personnel to determine if analytical results are acceptable. All calibrations, manual calculations and transcriptions are checked for accuracy, and quality control sample results are evaluated against specified tolerances. If instrument calibration and recoveries of all quality control samples are within specified tolerances, then the data will be presented to the Project Manager for final (tertiary) review.

Laboratory Director or senior chemistry personnel will perform final review of the data to determine if all analytical results of a sample(s) are consistent. Correlation of results for different parameters of a sample will be evaluated at this time before the data is presented in a final report to the client. If discrepancies or deficiencies exist in the analytical results, then corrective action will be taken.

A majority of the data will be reported using NJDEP "Reduced Deliverables" format. Data packages will include, at a minimum, the following items:

- Title
- Laboratory name, address, telephone number, contact person
- Unique Laboratory Project Number
- Total Number of Pages (report must be paginated)
- Name and address of Client
- Client Project Name (if applicable)
- Laboratory Sample Identification
- Client Sample Identification
- Matrix and/or Description of Sample
- Dates: Sample Receipt, Collection, Preparation and/or Analysis Date
- Definition of Data Qualifiers
- Reporting Units
- Test Method

The following will be required where applicable to the specific test method or matrix:

- Solid Samples: Indicated Dry or Wet Weight
- Indication by flagging where results are reported below the quantitation limit.

A Project Narrative and/or Cover Letter will be included with each project report and at a minimum will include an explanation of any and all of the following occurrences:

- Non-conformances
- Compromised sample receipt
- Method Deviations
- QC criteria failures

The Laboratory Director or designee will authorize the release of the project report with a signature.

Where amendments to project reports are required after issue, these shall be in the form of a separate document and/or electronic data deliverable. The revised report will be clearly identified as revised with the date of revisions and the initials of the person making the revisions. Specific pages of a project report may be revised using the above procedure with an accompanying cover letter indicating the page numbers of the project revised. The original version of the project report must be kept intact and the revisions and cover letter included in the project files.

Subcontracted data will be clearly identified as such, and the name, address, and telephone number for the laboratory performing the test is included in the project report. Subcontracted results from laboratories external to STL are not reported on STL report forms or STL letterhead. Test results from more than one STL facility are clearly identified with the name of the STL facility that performed the testing, address, and telephone number for that facility.

Sample results on the report forms will be corrected for dilutions. Soil samples are reported on a dry weight basis. Unless otherwise specified, results will be reported uncorrected for blank contamination.

For ten percent of the investigative samples, the data reporting package will be expanded to include all supporting documentation required of a NJDEP "Regulatory Package". This additional documentation includes, but is not limited to, all raw data required to recalculate any result including printouts, chromatograms, and quantitation reports. The report also will include: standards used in calibration and calculation of analytical results, sample extraction, digestion and other preparation logs; standard preparation logs, instrument-run logs; and moisture content calculations.

### **Section 9.3 Data Validation**

(No Additions/Revisions)

## **Section 10. PERFORMANCE AND SYSTEM AUDITS**

References to BB&L are changed to Quest.

## **Section 11. PREVENTATIVE MAINTENANCE PROCEDURES**

### **Section 11.1 Field Equipment/Instruments**

(No Additions/Revisions)

### **Section 11.2 Laboratory Equipment/Instruments**

In order to prevent system downtime, minimize corrective maintenance costs, and ensure data validity, the laboratory will employ a system of preventative maintenance. General preventative maintenance procedures, many of which are unique to particular instruments, will be outlined in each instrument's operation manual. All routine maintenance will be performed as recommended by the manufacturer. The manuals also assist in the identification of commonly needed replacement parts, so that an inventory of these parts is maintained at the laboratory. It is the Section Supervisor's responsibility to make sure that the most current version of the operator manual will be available in the laboratory. Routine maintenance is performed by the analyst while external technicians may be called in for major repairs. In addition, an in-house instrument specialist who has received training for repair of all major pieces of laboratory equipment will be available.

A bound maintenance and repair log notebook will be kept with each instrument to record all routine and non-routine maintenance. Notation of the date and maintenance activities will be recorded every time service procedures are performed. This includes routine service checks by laboratory personnel as well as factory service calls. The return to analytical control following instrument repair will also be noted in laboratory maintenance logbooks.

### **Section 12. CALCULATIONS OF DATA QUALITY INDICATORS**

(No Additions/Revisions)

### **Section 13. CORRECTIVE ACTIONS**

(No Additions/Revisions)

### **Section 14. QUALITY ASSURANCE REPORTS TO MANAGEMENT**

(No Additions/Revisions)

**TABLE 1-1. SAMPLE CONTAINERS, PRESERVATION AND HOLDING TIMES**

The revisions to Table 1-1 include:

1. The method for TCL Volatile Organics will be SW846 8260 (methanol extraction/preservation).
2. The method for Pesticides/PCBs will be SW846 8082.
3. The screening method for PCDDs is SW846 8270 with a 1-point calibration.
4. Total petroleum hydrocarbons will be analyzed via EPA Method 418.1m.
5. All other sample methods are the same as specified in Table 1-1 of the November 1996 QAPP.

**TABLE 1-2**

See attached revised Table 1-2 for data summary of planned analyses.

**TABLE 1-3**

(No Additions/Revisions)

## TABLES

TABLE 1-1 ADDENDUM - QUALITY ASSURANCE PROJECT PLAN

BAYONNE BARREL AND DRUM SITE  
NEWARK, NEW JERSEYSAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES

Parameter	Method <sup>(1)</sup>	Bottle Type	Preservation	Holding Time <sup>(2)</sup>
Soil				
TCL Volatile Organics + 15 TICs	SW-846 8260	40-ml VOA Vial with 25 ml methanol and Teflon®-lined lid.	Cool to 4° C.	14 days to analysis
TCL Semi-Volatile Organics + 15 TICs	SW-846 8270	250-ml glass jar with Teflon®-lined lid.	Cool to 4° C.	14 days to extraction, 40 days to analysis
TCL Pesticides/PCBs	SW-846 8082	250-ml glass jar with Teflon®-lined lid.	Cool to 4° C.	14 days to extraction, 40 days to analysis
PCDD (Dioxin)	SW-846 8270 (screening, 1-pt calibration)	250-ml glass jar with Teflon®-lined lid.	Cool to 4° C.	14 days to extraction, 40 days to analysis (screening)
TAL Metals (except mercury)	SW-846 6010	250-ml glass jar with Teflon®-lined lid.	Cool to 4° C.	180 days to analysis
Mercury	SW-846 7471			28 days to analysis
Total Petroleum Hydrocarbons	EPA 418.1m	250-ml glass jar with Teflon®-lined lid.	Cool to 4° C.	28 days to analysis

Notes:

(1) All methods are USEPA SW-846

(2) Holding times are from date of collection.

PCBs Polychlorinated biphenyls

PCDD Polychlorinated dibenzo-p-dioxin

TCL Target Compound List

TAL Target Analyte List

TIC Tentatively Identified Compounds via a Library Search

US Environmental Protection Agency. Office of Solid Waste and Emergency Response. Test Methods for Evaluating Solid Waste. SW-846 3rd ed. Washington,



**TABLE 1-2 ADDENDUM - QUALITY ASSURANCE PROJECT PLAN  
BAYONNE BARREL AND DRUM SITE  
NEWARK, NEW JERSEY**

**DATA SUMMARY OF PLANNED ANALYSES (Including QC)**

Parameter	Environmental Sample Quantity (Estimated No.)	Field QC Analyses						Laboratory QC Sample						Total
		Trip Blank		Field Blank		Field Duplicate		Matrix Spike		Matrix Spike Dup.		Lab Duplicate		
		Freq.	No.	Freq.	Estimated No.	Freq.	No.	Freq.	No.	Freq.	No.	Freq.	No.	
Soil														
TCL Volatile Organics + 10 TICs	20	NA	3	1/day	3	1/20	1	1/20	1	1/20	1	NA	--	29
TCL Semi-Volatile Organics + 20 TICs with a Dioxin Screen	20	NA	--	1/day	3	1/20	1	1/20	1	1/20	1	NA	--	26
Pesticides/PCBs	20	NA	--	1/day	3	1/20	1	1/20	1	1/20	1	NA	--	26
TAL Metals	20	NA	--	1/day	3	1/20	1	1/20	1	1/20	1	1/20	1	27
Total Petroleum Hydrocarbons	20	NA	--	1/day	3	1/20	1	1/20	1	1/20	1	NA	--	26

**Notes:**

Dup                Duplicate  
 Freq.            Frequency  
 NA                Not Applicable  
 No.                Number  
 PCBs            Polychlorinated biphenyls  
 QC                Quality Control  
 TCL               Target Compound List  
 TAL               Target Analyte List  
 TIC                Tentative Identified Compounds via a library search